Data Sheet

FUJITSU Software ServerView® Suite integrated Remote Management Controller - iRMC S4

Comprehensive remote control of Fujitsu PRIMERGY servers

The ServerView integrated Remote Management Controller iRMC S4 enables extensive monitoring and management of Fujitsu PRIMERGY servers regardless of their system status – even in out-of-band operation. Implemented in a chip on the motherboard it integrates essential system management functions with extensive remote management functionality.

As an autonomous system on the system board of a Fujitsu PRIMERGY server, iRMC S4 has its own operating system, its own web server, separate user management and independent alert management. iRMC S4 remains powered up even when the server is in stand-by mode.

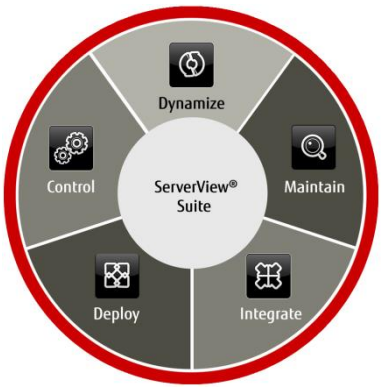
Communication is carried out via a LAN connection, which can be shared with the Fujitsu PRIMERGY server or used exclusively for system management.

iRMC S4 forwards the signals from the keyboard, monitor and mouse digitally over the network. In addition to all free standard functions, an iRMC S4 advanced pack can be purchased enabling graphical console redirection - Advanced Video Redirection (AVR) - and the use of multiple remote storage connections.

iRMC S4 gives administrators or service technicians access to the server for extensive control, even at decentralized locations. In the event of server problems, routine tasks and maintenance can be carried out efficiently.

iRMC S4 combines long-term expertise and practical experience gained with its successful predecessors. On top of the proven technology of iRMC S3, the new iRMC S4 features additional functionality including:
Remote control of server-internal HDDs and RAID configurations also in agentless out-of-band operation, video capturing as a useful tool for remote troubleshooting, Virtual Media for remotely connecting multiple CD/DVD, HDD or FDD images or physical drives, as well as support of the open standard CIM (Common Information Model) via the Management LAN connection.

As an important component within the ServerView embedded Lifecycle Management (eLCM) for Fujitsu PRIMERGY server the iRMC S4 supports here routine management tasks of system administrators with simplified, highly integrated and automated server management processes.



Resourceful Server Management

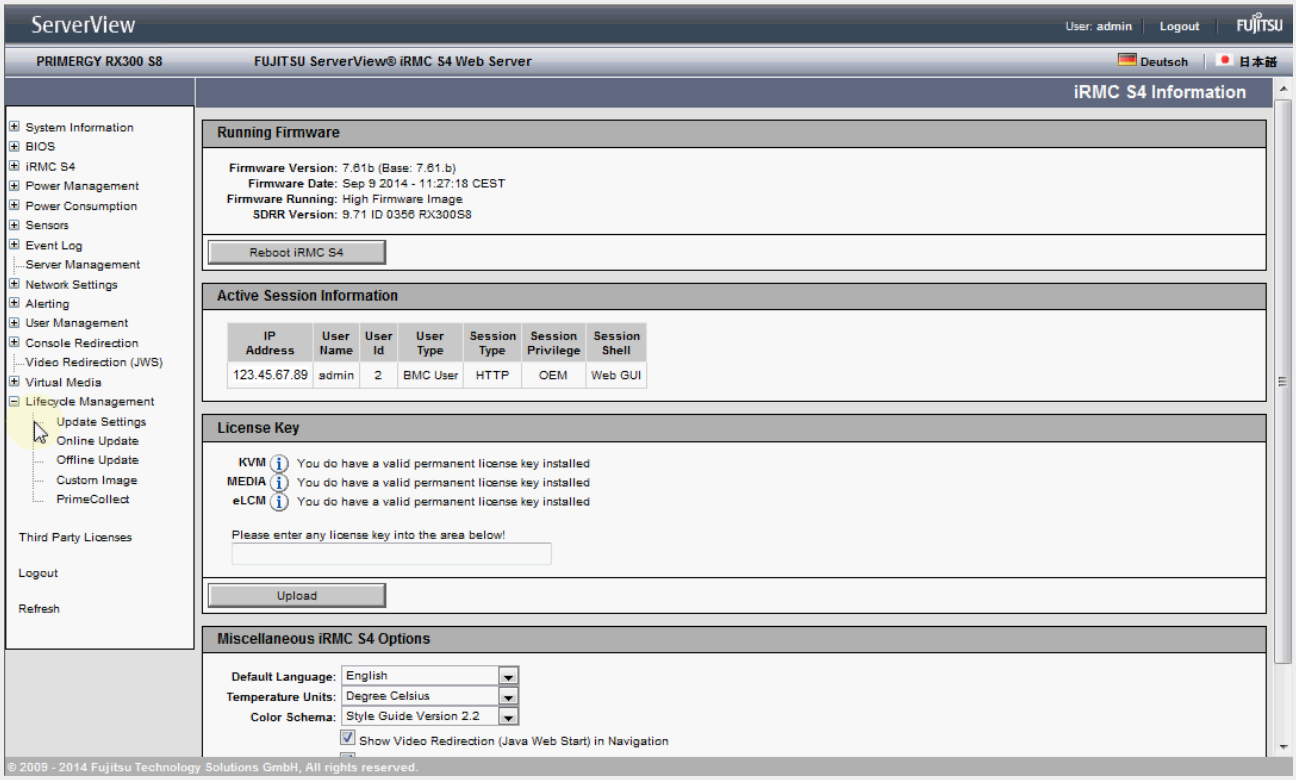
FUJITSU Software ServerView® Suite provides all the necessary elements for professionally managing server systems during their lifecycle.
For information on other ServerView products please visit www.fujitsu.com/fts/serverview

Green IT

Features and Benefits

Main features	Benefits
■ Universal system management solution for all Fujitsu PRIMERGY servers	■ No limitation of iRMC S4 functions depending on server models
■ Comprehensive control and analysis of Fujitsu PRIMERGY servers	■ Around-the-clock control, independent of the server status
■ Extensive power management inclusive pre-defined profiles and a scheduled mode to switch between profiles automatically	■ Simplified power management that adjust power consumption according to the current usage or to the given power policy
■ Monitoring of server-internal HDDs and RAID configuration	■ Remote control server-internal HDDs and RAID configurations also in agentless out-of-band operation
■ Support of local service display	■ Determine which system component is faulty and whether you can replace the faulty component yourself
■ Customer Self Service (CSS) concept	■ Avoid time-consuming and cost-intensive call-outs
■ Secure data connections	■ Enhanced communication security based on HTTPS / SSH
■ CIM support	■ Enables communication based on the open standard CIM (Common Information Model)via the Management LAN port
■ Efficient graphical console redirection (AVR)	■ No need for expensive external KVM switches
■ Video Capturing	■ Provides a useful tool for remote troubleshooting
■ Virtual Media	■ Supports remote connection of multiple CD/DVD, HDD or FDD images or physical drives located elsewhere in the network
■ embedded Lifecycle Management (eLCM)	■ Greatly supports routine management of system administrators with simplified, highly integrated and automated server management processes

Note:
- Depending on the server model or operating system used certain management functions may differ or may not be available.
- Not all functions described in this document will be available with the first release.



integrated Remote Management Controller - iRMC S4

iRMC S4 - Hardware for Remote Management

Remote configuration and maintenance minimize time-consuming and cost-intensive call-outs.

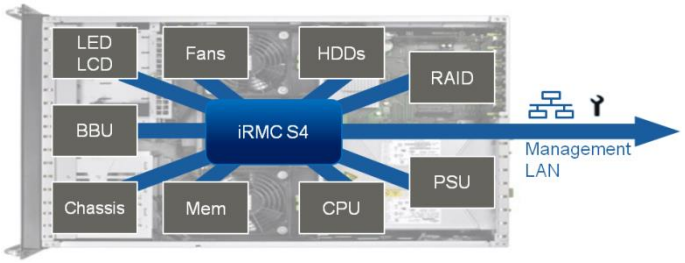
iRMC S4 permits system control, diagnosis, configuration and server restarting by remote access via the integrated web interface – even if the operating system or hardware fails. iRMC S4 communicates directly via I^2C with the hardware sensors, such as in fans. Errors can be analyzed and often also fixed right away. The system administrator is notified by email or SMS.

iRMC S4 allows for remote control of server-internal HDDs and RAID configurations also in agentless out-of-band operation, it enables video capturing as useful tool for remote troubleshooting and offers Virtual Media for remotely connecting multiple CD/DVD, HDD or FDD images or physical drives. Genuine headless system operation without a local mouse and keyboard is also possible.

Ensuring maximum security iRMC S4 offers enhanced security functions, including 128-bit SSL encryption and efficient user authentication. The open standard CIM (Common Information Model) is supported via the Management LAN connection.

iRMC S4 also performs the functions of a Baseboard Management Controller (BMC). It is thus able to take over functions such as power management or reading the System Error and Event Log (SEL) regardless of the system status.

iRMC S4 – integrated Remote Management Controller



Implementation of connections from iRMC S4 to HDDs and RAID depends on the individual Fujitsu PRIMERGY system.

iRMC S4 – Technical data

Graphics Modes	Resolution	Refresh rates [in Hz]	Maximum color depth [bits]
	640 x 480 (VGA)	60; 75; 85	32
	800 x 600 (SVGA)	56; 60; 72; 75; 85	32
	1024 x 768 (XGA)	60; 70; 75; 85	32
	1152 x 864	60; 70; 75	32
	1280 x 1024 (UXGA)	60; 70; 75; 85	16
	1280 x 1024 (UXGA)	60	24
	1600 x 1200 (UXGA)	60; 65	16
	1680 x 1050	60	16
	1920 x 1080	60	16
	1920 x 1200	60	16
	Only VESA-compliant graphics modes are supported.		
Memory	256 MB attached memory		
USB	USB 1.1/USB 2.0		
IPMI	IPMI 2.0		
DCMI	DCMI 1.0		
Network	Shared / dedicated 10/100/1000 MBit/s IPv4 and IPv6 support		

iRMC S4 – System requirements

Managed Server	
Software	Windows Server 2008 all editions (32/64 bit; ≥SP2) Windows Server 2008 R2 all editions (≥SP1) Windows SBS 2011 Windows Server 2012 all editions SuSE Linux Enterprise Server 11 (x86/EM64T/XEN; ≥SP2) Red Hat Enterprise Linux 5 (x86/EM64T/XEN; ≥U9) Red Hat Enterprise Linux 6 (x86/EM64T/KVM; ≥U4) VMware ESXi 5.0 U2 VMware ESXi 5.1 U1 Note: Not all operating systems have been released for all the hardware
Hardware	Fujitsu PRIMERGY server models: BX2560 M1, BX920 S4, BX924 S4 CX2550 M1, CX2570 M1 RX100 S8, RX1330 M1, RX200 S8, RX2520 M1, RX2540 M1 RX300 S8, RX350 S8 RX4770 M1 TX1320 M1, TX1330 M1, TX140 S2 TX2540 M1, TX300 S8
Administrator System	
Software	Microsoft Internet Explorer Version from Version 10. Mozilla Firefox from Version 23 (Windows and Linux version only)
Hardware	Standard PC, LAN

Notes:
- There may be import restrictions for some countries due to the 128-bit encryption.
- Depending on the server model or operating system used certain management functions may differ or may not be available.
- Not all functions described in this document will be available with the first release.

integrated Remote Management Controller - iRMC S4

Standard functions of the iRMC S4

Browser Access

The iRMC S4 features its own web server, which can be accessed from the management station with a standard web browser. All sensor information, such as fan speeds, voltages, etc., and the complete configuration of the iRMC S4 are made available to administrators via the web user interface.

Local User Management

The iRMC S4 has its own user management function which allows up to 16 users to be created with passwords and to be assigned various rights depending on the user groups they belong to.

Global user management using a directory service

The global user IDs for the iRMC S4 are stored centrally in the directory service's directory. This makes it possible to manage the user identifications on a central server. They can therefore be used by all the iRMC S4s that are connected to this server in the network.
The following directory services are currently supported for iRMC S4 user management:

- Microsoft® Active Directory
- Novell® eDirectory
- OpenLDAP
- OpenDS

CAS-based single sign-on (SSO) authentication

The iRMC S4 supports Centralized Authentication Service (CAS) configuration, which allows you to configure the iRMC S4 web interface for CAS-based single sign-on (SSO) authentication.
The first time a user logs in to an application (e.g. the iRMC S4 web interface) within the SSO domain of the CAS service, they are prompted for their credentials by the CAS-specific login screen. Once they have been successfully authenticated by the CAS service, the user is granted access to the iRMC S4 web interface as well as to any other service within the SSO domain without being prompted for login credentials again.

Security (SSL, SSH)

Access to the web server and the optional graphical console redirection, including the mouse and keyboard, can be protected by HTTPS/SSL (128-bit). Incorrect logins will be logged. To enable access to iRMC S4 via the Remote Manager cryptographically secured communication can be established, which is protected by the SSH mechanisms. The Remote Manager is an alphanumerical user interface of the iRMC S4.

DNS / DHCP

The iRMC S4 provides support for automatic network configuration. It has a default name and DHCP support is set by default so that the iRMC S4 gets its IP address from the DHCP server. The iRMC S4 name is registered by the Domain Name Service (DNS). Up to five DNS servers are supported. If DNS/DHCP is not available, the iRMC S4 also supports static IP addresses.

Network Bonding

Network bonding for the iRMC S4 is designed for redundancy in the event of Ethernet network adapter failures. Thus, iRMC S4 network management traffic is protected from loss of service which occurs due to failure of a single physical link.
The iRMC S4 supports the active-backup mode, i.e. one port is active until the link fails, and then the other port takes over the MAC and becomes active.

LAN

In most Fujitsu PRIMERGY systems one LAN interface of the built-in NIC (network interface card) is reserved for the management LAN. In the remaining systems the LAN interface can be configured optionally for

- exclusive use by the management LAN
- shared operation with the system
- exclusive use by the system.

The management LAN interface of the system NIC is indicated by a wrench icon – it supports IPv4 and IPv6.
High availability LAN support / failover between a shared LAN Port and the management LAN interface is supported (in IPv4 networks environment only).

Common Information Model (CIM)

iRMC S4 supports WSMAN as well as CIM/XML. For a list of supported profiles please check the related documentation.

Command Line Interface (CLI)

In addition to the Remote Manager, the iRMC S4 also supports SMASH CLP (**S**ystem **M**anagement **A**rchitecture for **S**erver **H**ardware **C**ommand **L**ine **P**rotocol) as standardized by the DMTF (Distributed Management Task Force).

Text Console Redirection

A Telnet session can be initiated on the iRMC S4 via the Remote Management Frontend. This calls the Remote Manager, via which a text console redirection session can be started, power management carried out, the error event log read or sensor information queried. Beside Telnet there is support for SOL (serial over LAN) and SSH (secure Shell).

"Headless" System Operation

The managed server does not require a mouse, monitor or keyboard to be connected. The benefits of this include lower costs, far simpler cabling in the rack and increased security.

Power Supply

Power to iRMC S4 is provided from the Fujitsu PRIMERGY system's internal standby power supply.

Basic functions of a BMC

iRMC S4 supports the basic functions of a BMC such as voltage monitoring, event logging and recovery control.

ServerView Operation Manager Integration

ServerView agents detect the iRMC S4 and automatically assign it to the relevant server. This means that it is possible to start the iRMC S4 web interface and text console redirection using the ServerView Remote Management Frontend directly from ServerView Operations Manager.

Power Management

Irrespective of the system status, the following options for powering the managed server up or down from a remote workplace are provided:

- via the iRMC S4 web interface
- via the *Power Control* menu of the AVR window
- via the Remote Manager and the command line interface (CLI)
- with a script

With this, a managed server can be powered up, a power cycle can be initiated or it can be shut down gracefully or instantly (power button override), e.g. if the operating system no longer responds. In addition, an immediate or graceful reset (reboot) can be initiated.

Power Consumption Monitoring

To monitor system power consumption via the web interface several reports are provided. You can choose between reports for a single day, for a month or a year - up to five years. Please note that Power Consumption Monitoring is not supported by all power supplies.

Power Consumption Control

iRMC S4 allows comprehensive power consumption control on the managed server. The following options can be selected:

- *O/S controlled:*
  Power consumption is controlled only by the operating system of the managed server.
- *Minimum Power*:
  The iRMC S4 controls the server to achieve the lowest possible power consumption. In this event, system performance is not always ideal.
- *Power Limit:*
  Restricts the max. power consumption of the managed server
- *Scheduled:*
  Allows the detailed specification of the schedules and modes (*O/S controlled, Minimum Power*, *Power Limit*) iRMC S4 uses to control the power consumption on the managed server.

Above settings are CPU specific and are not available for all CPU types and Fujitsu PRIMERGY servers.

HDD and RAID Monitoring

HDD and RAID status of the managed server is shown in the iRMC S4 web interface. Readout of the status is possible via IPMI.

Customer Self Service (CSS)

Not all components of a Fujitsu PRIMERGY server have to be replaced by Service. There are components you can replace on your own. These components are marked in the iRMC S4 web interface. This information is provided in ServerView Operations Manager as well. Additionally, a link is provided for easy purchasing of new CSS components.

Identification LED

The Identification LED of the managed system can be switched on via the iRMC S4 web interface to identify the system, for example in a fully configured rack.

Global error LED

A global error LED informs of the status of the managed system at all times and concurrently shows the CSS (Customer Self Service) status.

Power LED

The power LED informs you whether the server is currently switched on or off.

Support for the LocalView service panel

If Fujitsu PRIMERGY servers are equipped with a ServerView local service panel, this module allows you to determine which component is faulty and whether you can replace the faulty component yourself.

Simple Configuration – interactive or script-based

The following tools are available to configure the iRMC S4:

- iRMC S4 web interface
- Server Configuration Manager
- UEFI BIOS Setup

Scripted configuration via the Server Configuration Manager or IPMIVIEW is also possible. This means that the iRMC S4 can also be configured when the server is first configured via ServerView Installation Manager. Scripting is also possible to configure a large number of servers simultaneously.

Alert Management

The alert management facility of the iRMC S4 provides the following options for forwarding alerts (alerting):

- Platform Event Traps (PET) are sent via SNMP
- Direct alerting by email

In addition, the iRMC S4 provides the ServerView agents with all relevant information.

Read, filter and save the System Event Log (SEL)

The contents of the SEL can be viewed, filtered, saved and deleted

- by using the iRMC S4 web interface or
- by using the Telnet/SSH-based interface (Remote Manager) of the iRMC S4.

Read, filter and save the internal Event Log (iEL)

The contents of the iEL can be viewed, filtered, saved and deleted

- by using the iRMC S4 web interface or
- by using the Telnet/SSH-based interface (Remote Manager) of the iRMC S4.

Prefailure Analysis (PDA)

iRMC S4 takes care of prefailure analysis for memory and fans.

Online Firmware Update

The iRMC S4's firmware can be updated online since there are two independent images of the firmware on the motherboard. In case an error occurs during flashing, the redundant module can always be used as a backup (Secure Flash).

Enhanced functions of the iRMC S4 Advanced Pack

On top of standard functionality the iRMC S4 additionally provides Advanced Video Redirection (AVR) and Virtual Media.
This functionality is enabled by means of a release key that can be ordered either together with the Fujitsu PRIMERGY system (S26361-F1790-E243) or subsequently (S26361-F1790-L243) and which is loaded via the iRMC S4 web interface.
In the basic configuration of Fujitsu PRIMERGY server blades the iRMC Advanced Pack is included for free.

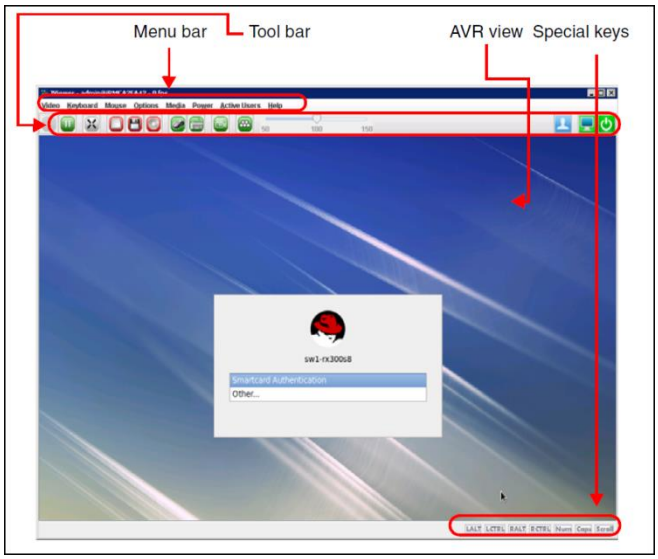
Advanced Video Redirection (AVR)

Advanced Video Redirection with iRMC S4 offers the following benefits:

- Operation via a standard web browser.
  No additional software needs to be installed in the management station other than the Java Runtime Environment.
- System-independent graphics and text console redirection, including the keyboard and mouse.
- Remote access for boot monitoring, BIOS administration and operation of the operating system.
- Support of up to two simultaneous "virtual connections" for working on a server from a different location. AVR also reduces the load on the network by using hardware and video compression.
- Local monitor-off support:
  It is possible to power down the local screen of the managed Fujitsu PRIMERGY server during an AVR session in order to prevent unauthorized persons from observing user input and actions carried out on the local server screen during the AVR session.
- Low bandwidth:
  In the case of a reduced data transfer rate, a lower bandwidth can be configured (bits per pixel, bpp) in terms of color depth for the current AVR session.

Video Capturing

As a useful tool for remote troubleshooting Video Capturing creates a video recording of the events that are displayed on the monitor at the managed server.



Virtual Media

Virtual Media options make a "virtual" drive available which is physically located on a remote workstation or made available centrally on the network using the *Remote Image Mount* functionality.

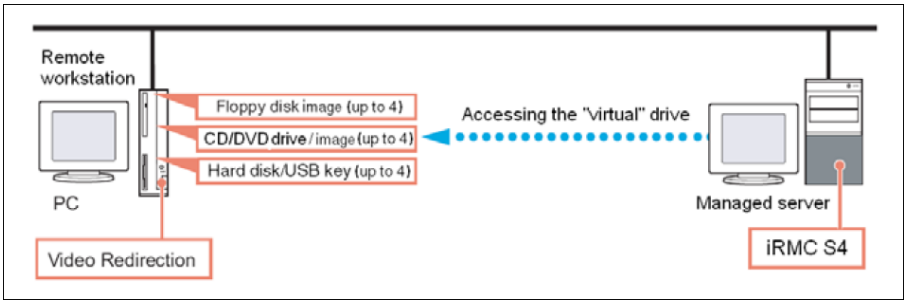
The "virtual" drives available with this function are simply managed in much the same way as local drives and offer the following options:

- Read and write data.
- Boot from virtual media.
- Install drivers and small applications.
- Update BIOS from remote workstation.

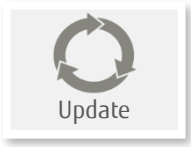
Virtual Media options support the following device types to provide a "virtual drive" on the remote workstation:

- CD ROM
- DVD ROM
- Memory stick
- Floppy image
- CD ISO image
- DVD ISO image
- Physical Hard Disk Drive
- HDD ISO image

The *Remote Image Mount* functionality provides ISO images centrally on a network share in the form of a "virtual drive".



ServerView embedded Lifecycle Management (eLCM)



ServerView embedded Lifecycle Management (eLCM) for Fujitsu PRIMERGY servers greatly supports routine management tasks and system administrators benefit from simplified, highly integrated and automated server management processes.

- eLCM consolidates and enhances ServerView functions directly available (embedded) within the server – without the need of external media[1)].
- Users have instant access to embedded ServerView functions and can thus conveniently start the required management tasks. eLCM and its highly integrated processes ensure a safe and reliable execution.
- eLCM reduces the load on system resources to a minimum since no software based agents or only the ServerView Agentless Service is required within the host's operating system.
- All in all, eLCM increases the overall operational effectiveness and reliability of IT infrastructures by enhancing the management capabilities of each individual PRIMERGY system with a highly integrated server management concept for a continuous 24x7 server operation.

With this release of eLCM the following functions are included:

- **Server Online Update / Offline Update**
  eLCM keeps your system up-to-date: Drivers and firmware are automatically updated in the background without any load on the host CPU and without any update media like USB or DVD.
- **Custom Image**
  eLCM lets users include their own images for offline operations or recovery purposes. This is of particular interest when servers are operated at widely distributed branch offices.
- **PrimeCollect**
  eLCM features autonomous creation of PrimeCollect archives.
- **Embedded AIS Connect extension**
  eLCM supports AIS Connect Service with autonomous creation and use of PrimeCollect archives.

[1)] **Additional features** like system configuration and installation as well as system diagnostics are planned and will be available with future releases of eLCM.

ServerView embedded Lifecycle Management (eLCM) is offered as an option for Fujitsu PRIMERGY servers based on iRMC S4 and requires a license key that can be ordered either together with the PRIMERGY system (S26361-F1790-E310) or subsequently (BDL:ELCM-PACK).

iRMC S4 – Optional components

The following components provide information on the system state directly on the server. Please note that these optional components are not available for all Fujitsu PRIMERGY servers and their usage also depends on the system's configuration.

ServerView Local Service Display (LSD)

The Local Service Display (LSD) shows system status messages directly on the server. These messages are arranged in several pages and provide information about the system and warn of hardware problems (e.g. fan failure) or critical temperatures. Furthermore, Customer Self Service (CSS) information can be retrieved as well.
The display consists of 2x20 characters and a four-way key to navigate through the pages.

Service LAN Option

Especially when service tasks are to be carried out locally, fast and uncomplicated access to a server's health data and management features is needed. Instead of struggling through the cabling at the back of the server to connect to the management LAN port, the Service LAN option (10/100 Mbit/s) allows easy and convenient access to the iRMC S4 directly from the front panel of the server.
The Service LAN connector is indicated by a wrench icon.

Service LAN Option in PRIMERGY RX350 S8

More information

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